DEQ Industrial Stormwater Permits
Tier II Revised Stormwater Pollution Control Plan Checklist

Instructions: *Complete this form and submit with the revised SWPCP and engineered plan or waiver request. Fill in the requested information in the highlighted cells and the appropriate page number(s) indicating the location of information in the revised SWPCP.*

Facility Name: Schnitzer Steel - Portland **File No.:** 108103

Permit Schedule	Requirement					Page #	Comments (for official use only)
A.12.c.ii	Date Revised Plan submitted: **12-31-2014**					Cover Page	
A.12	Outfall	Parameter	Geometric Mean Exceedance	Units	Percent Reduction in Concentration	Percent of Design Storm Infiltrated or Injected	
	#1	Copper	0.055	mg/L	>90%		
	#1	Lead	0.056	mg/L	>90%		
	#1	Zinc	0.53	mg/L	>90%		
	#2	Zinc	0.33	mg/L	>90%		
A.12.c.i.1	**Proposed Tier II Corrective Action Response**					Page 20	
	1.08	Design storm in inches				Page 20	
A.12.c.i.1	Rationale for the selection of the measures					Page 21	
A.12.c.ii.	Schedule for implementing these measures					Page 21	
A.12.c.i.2	Stamped by PE or CEG					App 16, Page 1	
Cost of installation						Page 21	
Treatment system schematic and operational plan						Appendix 17	
Operation and maintenance schedule for treatment measures and/or volume reduction measures proposed						Appendix 18	

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A.12.c	Revised SWPCP complete and acceptable		
A.12.c.ii	Implementation of treatment measures by June 30th of 4th year of permit		
A.12.c.iii	Tier II Benchmark Exceedance Report submitted to DEQ or Agent		

Notes: _____

Late updated: 8/27/14
Created by: Mark Riedel

Once treated by separation and filtration, stormwater is pumped into a 1,000,000-gallon storage tank (Stormwater Holding Tank). The collected stormwater at this point can be used two ways: as process cooling water for the shredder (it would be pumped to the 1,000,000-gallon Process Water Holding Tank first) or discharged through Outfall-2 to the Willamette River.

SSI was engaged in a stormwater treatment feasibility study for which field pilot testing was conducted in the Fall of 2013. The study results facilitated remedy selection and planning for full-scale construction and implementation which will include a reduction of the number of outfalls to one (i.e., Outfall-2).

As described in Section A.3.b.i, stormwater that falls into Drainage Basins R1, R2 and R3 is contained in a series of catch basins that lead to the settling pond and process water storage tank system for recycle/reuse as process cooling water in the shredder system.

There are also six groundwater monitoring wells (M1 through M6) and two private water supply wells (WW-1, WW-2) on-site (see Site Map in Appendix 5 for locations). The groundwater monitoring wells are approximately 25 to 30 feet deep and can be accessed above-ground to monitor groundwater. A closed, locked cap is kept on the top of each monitoring well to secure access and prevent contamination. WW-1 is no longer in use and has had a metal plate welded to the top of it to prevent access. WW-2 is inside the Shredder Maintenance Building and is still in use as previously described.

SSI has implemented a variety of stormwater pollution controls, BMPs and structural modifications to minimize the potential for contamination of stormwater runoff from the site. Stormwater pollution controls can generally be categorized as either source controls or structural controls. Source controls are practices that reduce or eliminate the potential for contact of stormwater with pollutant sources, or eliminate non-stormwater discharges (e.g., spills or leaks). Structural controls are in-pipe or end-of-pipe treatment systems and discharge volume reduction devices. Some controls, such as containment structures designed to isolated potential pollutant sources, may be classified in either category.

In general, source controls are given the highest priority for implementation under the SWPCP. SSI believes that control of potential pollution is a more proactive approach to stormwater pollution prevention, minimizing the need for often expensive end-of-pipe treatment technologies. However, due to the nature of metal recycling operations and existing conditions, structural controls have also played an important role in stormwater pollution prevention at this facility and will continue to be evaluated for implementation.

Appendix 7 (Stormwater Pollution Controls and BMPs) provides a summary of existing and proposed stormwater pollution control measures relevant to the SSI facility. As indicated in Appendix 7, existing control measures undergo continuous evaluation for applicability and effectiveness and some have been designated for improvement. The following subsections describe the control measures in greater detail.

A.5 Proposed Tier II Corrective Actions

Due to a legislative change, stormwater discharge parameters have changed since the issuance of the previous NPDES permit in the State of Oregon. In the Plan year ending June 30, 2012, SSI reported exceedances of three parameters in Outfall-1 and one parameter in Outfall-2. As required, SSI began the process of studying, testing, designing, and installing additional stormwater treatment to comply with current permit requirements. Based on Tier II Revised SWPCP Checklist Instructions guidance from DEQ, SSI and its contracted Engineering firms have calculated 1.08 storm inches for use in design purposes. The proposed modifications to Site stormwater management are discussed in the following sections.

A.5.a Outfall Reduction

Tier II corrective action will include reducing the number of outfalls discharging stormwater to the Willamette River from two points (i.e., Outfalls 1 & 2) to a single outfall (i.e., Outfall-2). The current Site configuration drains stormwater collected in Basin 1 and Basin 2 to Outfall-1 and Outfall-2, respectively.

Collection of stormwater in Basin 1 will remain unchanged; however, its discharge will be re-routed directly to the existing stormwater pump station immediately downstream of the last stage of the multi-stage, corrugated plate separator (CPS), as illustrated on the amended Drainage Basin & Catch Basin Layout. Flow from the CPS will gravity feed via a newly constructed underground conveyance line to the catch basin (CBMH6-2) located proximate to the 1-million gallon, stormwater storage tank. Stormwater will gravity feed directly to the pump station where it will be filtered and pumped to the 1-million gallon stormwater storage tank as before. The 1-million gallon stormwater storage tank will then be utilized as a settlement tank before pumping as influent to the selected treatment system (i.e., electrocoagulation). All water will then be discharged to the river post treatment.

A.5.b Stormwater Treatment by Electrocoagulation

SSI engaged Windward Environmental LLC (Windward) to perform a Feasibility Study (FS) to identify potential stormwater treatment technologies for deployment at the site. In the initial phases of the FS, along with local Engineers, five treatment methods were evaluated for proven effectiveness, practical application at the site, and cost of installation. Of the five methods, two were chosen for bench testing. The final candidates, electrocoagulation (EC) and chitosan sand enhanced filtration (CSEF), were bench tested in 2012. Based on the results of the bench test, a pilot study was performed at the site in 2013 using both systems connected in a parallel configuration, and using stormwater collected and stored during the evaluation period. The results of the pilot study were favorable, and both technologies were determined to be acceptable for full-scale deployment. Ultimately, EC was chosen above CSEF due to its known effectiveness at similar facilities, slightly lower maintenance costs and ease of operation.

A.5.c Schedule for Implementing Measure

SSI plans on starting construction in June 2015. SSI hopes to have the treatment system fully installed by August 30, 2015, and fully commissioned by December 31, 2015.

A.5.d Cost of Proposed Tier II Response

The following table summarizes the approximate Tier II Corrective Action cost for testing, design, and installation:

SSI Employee Contributions to FS, Bench Test, and Pilot Study	$20,000
Feasibility Study	$100,000
Bench Test	$10,000
Pilot Study	$75,000
December 2014 SWPCP Revision	$5,000
Treatment System – Civil Engineering	$5,000
Treatment System - Civil Construction	$20,000
Treatment System – WaterTectonics	$926,500
Treatment System – SSI Employees and Equipment	$50,000
Treatment System – O&M from Commissioning to June 30, 2016	$30,000
Estimated Total:	**$1,241,500**